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At reappearance, both A. A. R. and R. have, for the 1st and 2nd contacts with the ring and for the 1st contact with the ball, observed the moment at which any part of the outline of ring or ball first emerged from behind the limb of the Moon; and for the 2nd contact with the ball and the 3rd and 4th contacts with the ring the first moments at which the limb of the Moon and the outline of the ring or ball were completely separated; whereas W. noted the times of emergence of the several points where the major axis of the ring cut the ring and ball.

Observers (September 3):—

[A. A. R.] Dr. Rambaut. Barclay equatorial, 10-inch aperture. Powers: 180, disappearance; 85, reappearance.

[W.] Mr. W. Wickham. Marlborough telescope, 3·2-inch. Power, 75. Observations recorded on the chronograph.

[R.] Mr. W. H. Robinson. Heliometer, 7·5-inch (one segment only). Powers: 200, disappearance; 80, reappearance.

Radcliffe Observatory, Oxford:
1900 *November* 6.

Occultation of Saturn, 1900 *September* 3. By the Rev. S. J. Johnson, M.A.

The occultation of *Saturn* on this evening took place under similar circumstances to that which I witnessed on 1870 September 30, the sky being on both occasions singularly clear, the disappearance being about half an hour after sunset, the Moon not far from the first quarter, and the objects nearly at the same point in the sky.

I employed power of 100 on $3\frac{3}{4}$-inch equatorial.

At $7^{h}\ 10^{m}\ 17^{s}$ the preceding ansa of the ring already in contact with the Moon's limb.

$7^{h}\ 11^{m}\ 1^{s}$. Globe of *Saturn* reached.
$7^{h}\ 11^{m}\ 54^{s}$. Globe covered.
$7^{h}\ 12^{m}\ 30^{s}$. Following ansa of ring immerged.

At the reappearance, owing to the dull faint colour of the planet, it had begun to come out a few seconds before being distinctly perceived.

At $8^{h}\ 6^{m}\ 53^{s}$. Globe began to emerge.
$8^{h}\ 7^{m}\ 40^{s}$. Globe entirely emerged.
$8^{h}\ 7^{m}\ 59^{s}$. Last contact with following ansa of ring.

The planet disappeared gradually with uniform motion, and clear definition. At emersion, the difference of brilliancy between the bright yellow limb of the Moon and the grey disc of the planet was most striking. One could not but be impressed with the marked contrast with the brightness of *Jupiter* when close to the Moon at his occultation four years ago last June.

Melplash Vicarage, Bridport:
November 2.

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Photographic Measures of the Ring Nebula in Lyra and of the Neighbouring Faint Stars. By F. P. Leavenworth.

(*Communicated by the Secretaries.*)

In response to Professor Barnard's request for observations of the faint stars near the Ring Nebula of *Lyra* (see *Monthly Notices, R.A.S.*, January 1900), the following measurements are published. They are measures of photographs taken with the 10½-inch refractor of the University of Minnesota.

Observations of position-angle and distance were made with a Repsold measuring machine, exactly as a double star is measured with a filar micrometer or an ordinary visual telescope. Each measure was repeated with the angle rotated through 180°.

The orientation was found by reading the angle of a star trail on the plate.

Since the distances measured were very small, never more than one and one-half millimetres, variation of scale value and other small corrections were found to be negligible quantities. The amount of time consumed in measurement and reduction was therefore not greatly in excess of that employed in ordinary double-star measures.

Corrections were applied for division error of scale, error of run and refraction. In addition a correction to the reading of the circle for orientation had to be introduced because the trail was not at the middle of the plate. If c = this correction and d = the distance of the trail from the middle of the plate,

$$c = d \tan \delta$$

plus if the trail is east. The greatest value of c was about 0°·5.

The adopted scale value for all four plates was one millimetre $= 59''\cdot 64$.

The plates were taken as follows :—

			h	m		
I.	Sept. 1, 1897	Exposure	1	23	Night	poor.
II.	Nov. 1, 1899	,,	2	4	,,	fair.
III.	Apr. 1, 1900	,,	1	42	,,	good.
IV.	June 5, ,,	,,	2	5	,,	good.

The nucleus of the nebula was a clearly defined spot which could be accurately measured. Star b was too indistinct to be observed except on plate 2, and c was scarcely stronger ; f could not be accurately measured on account of the blurring of the components.

Plate III. was measured by three members of the class in astronomy, Miss Harriet Dunton, Miss Louise Goulding, and Mr. Albert Lehman. Their names are indicated by the initials D., G., L. This being their first experience in photographic

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